Issues In Subjective Workload Assessment In A Not-For-Profit Government Setup

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ABSTRACT

The assessment of workload for workforce rationalisation in a not-for-profit, government organisation is a challenging task, particularly the departments which are engaged in providing staff solutions. Various tools have been propounded by researchers over the years to measure the workload out of which Subjective Workload Assessment Technique seems to be the most appropriate approach for the given task. The present study attempts to find out the issues around the use of any such tool.

Since all the staff sections are doing qualitative work of different nature, a common platform was required to be created to compare the workloads of these sections by way of according weights to different tasks. A group of learned employees who are well versed with the working of sections would be asked to rank the sections on some common parameter to see if there exists uniformity in the subjective evaluation between subjects. if, any evidence of uniformity exists then the study can proceed further to establish weights and evaluate workload.

It was found that the subjects are not able to assess the same stimulus of workload uniformly, therefore, subjective workload assessment technique on any scale has its limitation in such a setup.

The study suggest that the exact assessment of the workload of the staff sections of not-for-profit government setup is possible only after the implementation of complete office automation in Organization with contemporary IT tools. The implementation of such tools will also necessitate up gradation of some existing rules. The office automation will yield a benefit in tracking the quantum, speed and direction of work-flow of every seat. Only then we will be able to establish the key performance indicators, and TAT's (predetermined timebound targets for work types) for individual and team performance. Performance appraisals will be more objective and specific to expectations from individual's performance. Distribution of workload can be made more rational and equitable.

Key words: Work force rationalisation, Equitable distribution of work, Subjective Workload Assessment Technique

INTRODUCTION

The assessment of productivity across different functions in an organisation is a very complex empirical issue, as every assessment exercise would pose a preliminary challenge of equating the different functions and their requirements on a common scale.

Over the years, several scales have been developed to measure operator-based subjective workload: the Cooper-Harper Scale, the perceived workload scale, the Subjective Workload Assessment Technique (SWAT), the Workload Profile (WP), the Rating Scale Mental Effort (RSME) and the NASA-Task Load Index (NASA-TLX) (Hoonakker, Measuring workload of ICU nurses with a questionnaire survey: the NASA Task Load Index (TLX), 2011). While identifying the factors associated with variations in subjective workload within and between different types of tasks, a multi-dimensional rating scale, NASA-TLX (Task Load Index) was proposed by Sandra G.HartLowell E.Staveland (Hart, 1988) by combining six workload-related factors (Mental Demand (MD), Physical Demand (PD) and Temporal Demand (TD), Frustration (FR), Effort (EF), and Performance (PE)) to derive a sensitive and reliable estimate of workload. Hoonakker et al have reviewed several literatures that shows that the NASA TLX is a reliable and valid instrument and is actually more reliable and valid than other subjective workload instruments like TLX, SWAT and WP (Hoonakker, 2011).

In comparison with other workload assessment methods (unlike physiological & psychological assessment) subjective ratings provide the most generally valid and sensitive indicator (Hart, 1988). However, It is the subjective experience of workload that is the basis of subjective ratings, it is not likely that an operator's experience of workload is a simple combination of the relevant factors ratings may be biased by preconceptions (Hart, 1988). Also, the assessment of workload in a not-for-profit setup will become all the more intricate given that the out put of any task is not firmly correlated with the net gain involved on performing it, as the social objectives of accomplishing a task, overlays its cost

considerations. The performing of job functions in such as system is more or so guided by organisation rules than cost of performing those functions. Over a period of time these rules become sticky and less relevant to the change in the business environment. As the processes that are not guided by cost go lengthy and complex, any exercise of assessment of workload has to unwarrantably add a rider for all those considerations that may add upto repetitive tasks and mock workload. Further, the people are preoccupied with the consequences of workload measurement exercise and relate it with the possible transfers to some other inconvenient places, therefore, they are impressed upon to show themselves hard pressed and overloaded. One more consideration goes against the use of subjective rating method in government setup is that temporal requirement, as well as performance standards, are not fixed therefore the subject's assessment of workload on these two dimensions are likely to be misunderstood by the subjects.

In their study, Keith C. Hendy, Kevin M. Hamilton and Lois N. Landry "Measuring Subjective Workload: When Is One Scale Better Than Many?" Suggested that a univariate scale is as good as mutivariate scale when overall demand on human information-processing is required (Keith C. Hendy, 1993). in such a scenario, it would be worthwhile to assess if the subjects are able to interpret the subjective assessment equally or not, about a same stimulus of workload with just one simplified parameter 'perceived overall workload'.

The present exercise to assess the workload of a section(department in a government setup) is an attempt to address some to the inherent issues and challenges to measure and bring about equitable work distribution among the employees in government setup engaged in a not-for-profit cause.

MAIN OBJECTIVE OF THE EXERCISE

- To quantify the workload of the sections of a government setup[1] engaged in a not-for-profit cause

Sub objectives of the exercise

- To see if the distribution of the workload among the staff sections is equitable
- Redrawing the organizational hierarchy on the basis of quantum of workload if workload assessment if possible through established subjective workload assessment tool.

[1] The selected government organisation is the renowned organisation in India, in the field of the dispensation of Justice

PROBLEM AREA

The major difference between the staff sections and the line sections as observed in the preliminary discussions with the staff appears to be the predominance of qualitative nature of the work in the staff sections when compared to the nature of the work in the line sections. Therefore the major focus area was to identify whether the workload of the staff sections can be quantified on the basis of the description of the processes reported by the section staff as in the case of line sections.

In the Line Sections, scientific approach towards measurement of workload was adopted wherein the all the work types in a section was recorded and the corresponding weights were obtained against them by calculating the product of average time taken to complete that work type and the frequency of occurrence of that work type over a specific time period. The summation of the products across the work types yielded the workload of that section in terms of hours. But in staff sections the average time taken to do a task is conditioned upon several qualitative factors and varies from individual to individual, therefore, a perception based exercise would be more effective in according relative weights to the workloads of the sections.

METHODOLOGY

The exercise was conducted in two stages, the first stage was exploratory stage wherein the sections were analysed on the basis of the processes that are the part of the functioning of the sections. In this stage the staff of the section was asked about their views on the overall objective of the section within the overall objectives of the establishment of the Organization and about how, (through which tasks) they fulfill their role. 30 sections were analysed for the detailed processes and the associated key statistics thereof.

In the second part of this exercise empirical evidence was to be established prior to assigning the relative weights to individual sections on their process, to arrive at the figure of their workload. A detailed note of the 30 section were compiled and put before the selected respondents who were to choose 5-7 sections which they could equally appreciate based on the compiled descriptions and their previous knowledge of the working in the section. The respondents were asked to rate the sections on the basis of their perceived workload on the scale of 1-10. The ratings so obtained were subjected to the Friedman's non parametric test to identify if the ratings were having internal consistencies or not.

If the internal consistencies could be established through the result of the test then the exercise was supposed to be done on all the staff sections to find out the relative weights for assessment of workload.

Sampling

The 30 staff sections of a targeted government setup were selected randomly from a list of staff and line sections to prepare a brief of their working profile. For the second stage of the exercise, a purposive or Judgmental sampling method was adopted to fulfill the basic assumption that the respondents are well versed with the functioning of the sections and have working knowledge of the establishment section. The establishment section of the selected government setup is the department which brings about an equitable deployment of the workforce across all the sections as such they are expected to know the workload of all the sections better than employees in any other sections. The defining parameter for sampling was primarily that the respondents need to be well versed with the function of the organization. Secondly they must be having 7-8 years of exposure to working in establishment of Class III employees. A sample size of only 5 such learned persons was available for the evaluation.

DATA ANALYSIS

The non-parametric statistical test of related measures (Friedman's test) was employed for data analysis. The Friedman statistical test for evaluation of n samples of ratings of k sets of related objects. Here 'k' stands for number of sections and the 'n' stands for the observations of the different respondents on the set of sections. The Friedman statistics, tests the null hypothesis that there is no significant difference between the mean scorings/ ranks obtained by the related objects at a significance level of 0.01 or that the n samples have been derived from the same population and that the different pairs of ranking obtained in different samples have consistencies in the evaluation of the k related objects.

Hypothesis $_{\text{Null}}$: The distributions are the same across repeated measures or there is no difference in mean ranks for repeated measures.

Hypothesis $_{\text{Alternate}}$: The distributions across repeated measures are different or a difference exists in the mean ranks for repeated measures.

Table-1

Descriptive Statistics

K (Name of the Sections under workload evaluation)	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
Accounts_C1	5	6.60	1.52	5.00	9.00	5.50	6.00	8.00
Admin_A1	5	7.20	1.09	6.00	9.00	6.50	7.00	8.00
Admin_Inspection	5	7.60	.89	7.00	9.00	7.00	7.00	8.50
Admin_E2	5	6.20	1.30	5.00	8.00	5.00	6.00	7.50
Admin_G1	5	7.00	1.00	6.00	8.00	6.00	7.00	8.00
Admin_G2	5	7.20	.83	6.00	8.00	6.50	7.00	8.00
Accounts_B2	5	5.60	1.14	4.00	7.00	4.50	6.00	6.50

Table-2

Mean Ranks

Name of the Sections	Mean Rank
AccountsC1	3.90
AdminA1	4.80
Admin_Inspection	5.10
AdminE2	3.10
AdminG1	4.40
AdminG2	5.10
AccountsB2	1.60

Table-3

Friedman Test Statistics

N	5
Chi-Square	12.15
df	6
Asymp. Sig.	.059

* p < .05

Friedman's Chi-Square = 12.149 with d.f. = (number of section-1) =6 and p > 0.01

Kendall's coefficient of concordance = 12.149

When the p-value is low, there is evidence to reject Null Hypothesis and accept alternative hypothesis, but here the P value or asymptotic significance is much more than 0.01.

The asymptotic significance figure of 0.059(which is greater than 0.01) means that there exists no reason to reject the null hypothesis. The ratings given by the different individuals on the same set of sections have no internal consistencies. In other words, it can be concluded that the respondents were not able to identify the difference in the workload of the section properly through their perceptions. The respondents have dissimilar perceptions for the same set of sections.

MAJOR OBSERVATIONS AND CONCLUSION

- The work profile of the staff sections is primarily of qualitative nature unlike line sections therefore the workload figures as described by the staff of line sections is not very well described by the employees of staff sections. As a result, the scientific method of workload exercise cannot be fruitfully applied in determining the workload of the staff sections.
- Since the methodology of quantifying the workload cannot be gainfully employed in staff sections therefore the exercise of perceived workload was applied to the staff section and it is again established from the results of the empirical exercise that the workload of the staff sections cannot be perceived from the description of their work types.

REFERENCES

Hart, S. G. 1988. Development of NASA-TLX (Task Load Index): Results of empirical and theoretical research. *Advances in psychology*, 52: 139-183.

Hoonakker, P. C. 2011. Measuring workload of ICU nurses with a questionnaire survey: the NASA Task Load Index (TLX). *IIE transactions on healthcare systems engineering*, 1(2): 131-143.

Aasman, J. , Wijers, A.A., Mulder, G. & Mulder, L.J.M. 1988. Measuring Mental Fatigue in Normal Daily Working Routines. *Advances in Psychology*, 52 :117-137.

Keith, C. & Hendy, K. M. 1993. Measuring Subjective Workload: When Is One Scale Better Than Many?. *The Journal of the Human Factors and Ergonomics Society*, 35(4): 579-601.

Damos, D.L. 1988. Individual Differences in Subjective Estimates of Workload. *Advances in Psychology*, 52 : 231-237.

Lysaght R.J. et al. 1989. Operator workload: Comprehensive review and evaluation of operator workload methodologies. *Tech Report 851*. Fort Bliss, TX. Army Research Institute.

Meshkati, N. & Loewenthal, A. 1988. The Effects of Individual Differences in Information Processing Behavior on Experiencing Mental Workload and Perceived Task Difficulty: A Preliminary Experimental Investigation. *Advances in Psychology*, 52 : 269-288.

Jex, H.R. 1988. Measuring Mental Workload: Problems, Progress and Promises. *Advances in Psychology*, 52 : 5-39.

Ruch, W. A. 1994. Measuring and managing individual productivity. Washington, DC: The National Academies Press. doi: 10.17226/2135.

Ruch, W.A. 1994. Measuring and Managing Individual Productivity. In D. H. Harris(Eds.), *Organizational Linkages: Understanding the Productivity Paradox*: 105-130. Washington D.C: National Academy Press.

Eggemeier, F.T. 1988. Properties of Workload Assessment Techniques. *Advances in Psychology*, 52: 41-62